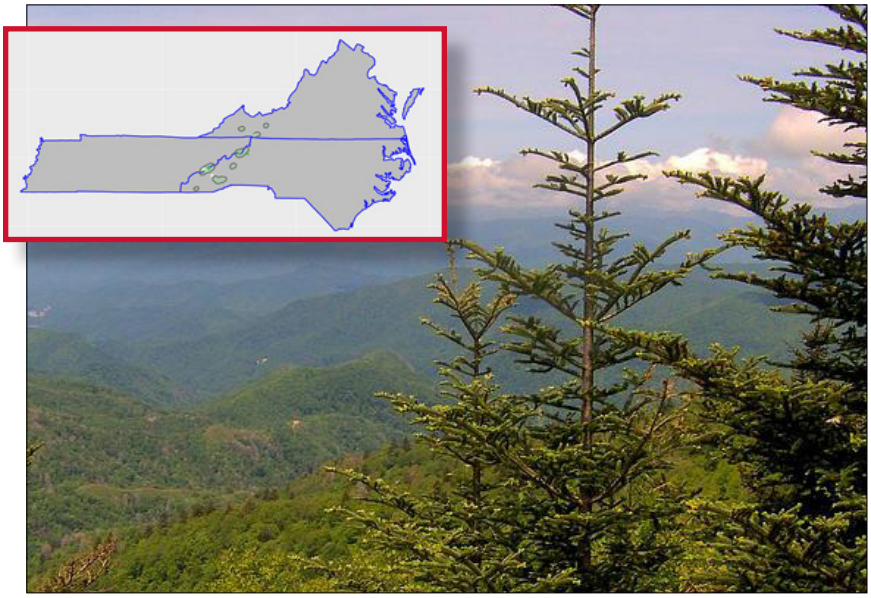
NTFPs from Trees: Nontimber Forest Products that Support our Society and Economy

FRASER FIR

ORNAMENTAL

Product: Christmas trees
Plant parts used: Seeds and seedlings

Fraser fir (*Abies fraseri* [Pursh] Poir) is a popular, high-demand Christmas tree species, making it an important nontimber forest product. Fraser fir is the only endemic fir to the Southern Appalachian Mountains. It is a small to medium-sized tree with a very limited range in upper elevations of western North Carolina, southwestern Virginia, and eastern Tennessee (shown in green on the map below).



Key Points

- Fraser fir is endemic to a small region in the Southern Appalachian Mountains; at one time, seedlings were 'pulled' from forests to supply nurseries.
- Today, about 35 million live Fraser fir Christmas trees are produced on farms annually.
- North Carolina supplies 14 percent of the Nation's Christmas trees.
- Upper-elevation Fraser fir forests have declined and are threatened by impacts from the balsam woolly adelgid and climate change.
- Natural stands of Fraser fir hold the genetic diversity for desirable qualities and resistance to pests and diseases that affect the species in nurseries and tree farms.

Nontimber Uses

- Originally, Fraser fir seedlings were dug from natural forests to be replanted in Christmas tree farms and grown until merchantable. This practice of 'pulling' seedlings declined as seed production allowed for growing trees in nurseries.
- Fraser fir is a preferred Christmas tree species because of its post-harvest characteristics: it loses water slowly, retains needles, and is durable.
- Wreaths, garlands, and greenery for holiday decorations made from Fraser fir boughs are also important specialty products.

Markets

- In addition to upper-elevation forests, Fraser fir occurs in tree farms that supply the Christmas tree industry.
- Fraser fir Christmas trees became an important income source for western North Carolina farmers after World War II. Today, North Carolina is second in the Nation for total Christmas tree production and first in dollars per tree.
- In 2017, Christmas tree sales in North Carolina exceeded $86 million. More than 850 farms produced >4 million trees on about 39,000 acres.
- Fraser fir represents >90 percent of all Christmas trees grown in North Carolina.
- The Fraser fir Christmas tree industry has implications beyond the immediate revenues associated with tree sales because much of the income generated is reinvested into farms and local communities.

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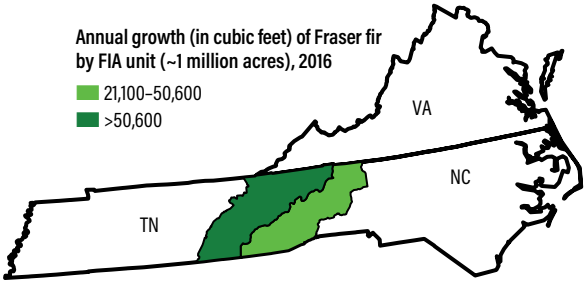

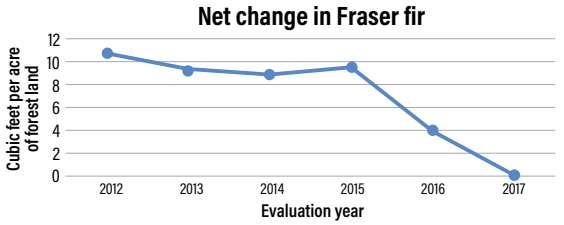

Status[a]

- Upper-elevation Fraser fir forests are unique boreal ecosystems. Infestations of balsam woolly adelgid (*Adelges piceae*) have eliminated mature trees in natural stands, resulting in altered plant and animal communities.
- In 2016, across its native range, concentration of annual growth is in western North Carolina and eastern Tennessee (see the map to the left).
- The decline of seedling harvests for Christmas trees has reduced pressures on natural populations. Across all States with Fraser fir, there were an estimated 938 seedlings per acre of forest land.[b]
- According to Forest Inventory and Analysis (FIA) data, the net change (i.e., difference between growth and sum of mortality and removals) trended negative from 2012 through 2017 (see the chart to the left).

[a] Estimates are based on observations of at least one specimen of the species in an inventory plot (representing about 6,000 acres of forest land). They are not based on all forest land for the State.

[b] At 68-percent confidence level, standard error is ± 39 percent of estimate.

Management and Implications

- The upper-elevation spruce-fir forest type has an important role in protecting watersheds for several major rivers and is rich in endemic, rare plants and animals.
- Fraser fir may be a particularly informative species for population genetics and ecology studies because of its small isolated geographic distribution, uncertain relationship with other North American *Abies* species, and severe threat from insects and climate change.
- Management strategies that protect healthy, reproductively mature trees will improve Fraser fir populations.
- Christmas tree plantings have created an incentive for landowners to retain farmland. When properly managed, Christmas tree farms are also important for wildlife, representing an early successional forest.

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The U.S. Department of Agriculture Forest Service **Forest Inventory and Analysis (FIA)** program tracks growth, mortality, and removals of forest trees and more. For additional information: https://www.fia.fs.fed.us/

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